WHAT IS CLAIMED IS:

1. A fiber optic modulator system, comprising:

an optical source;

a first polarization maintaining (PM) coupler for splitting a signal received from said source into two optical paths, said two paths forming a Mach Zender Modulator (MZM);

a phase modulator disposed in a first optical path;

a piezo-electric transducer (PZT) disposed in a second optical path;

a second PM coupler for recombining said first and second optical paths; and

a detector for detecting the output from said second PM coupler.

2. The system of claim 1 further comprises:

a fiber tap for sampling output from the second PM coupler;

a d.c. photodetector for detecting the output of said fiber tap; and

a phase locked loop (PLL) system disposed to receive a signal from said d.c. photodetector, said PLL system providing a feedback signal to said PZT for controlling the relative phases of said first and second optical paths.

3. The system of claim 2 wherein said PZT controls the optical path length of said second optical path.

4. The system of claim 2 wherein said phase modulator is made of lithium niobate ($LiNbO_3$).

5. The system of claim 4 wherein said phase modulator imprints an analog signal into said first optical path for modulating a signal from said optical source.

6. The system of claim 5 wherein said phase modulator enables phase modulation of signals in said first optical path by an RF signal, the phase modulation being detected by said second PM coupler.

7. The system of claim 6 wherein said phase modulator maintains optical polarization of signals from said optical source.

8. The system of claim 7 wherein said optical source is a diode pumped Nd:YAG ring cavity laser.

9. The apparatus of claim 2 further comprises:
erbium doped fiber amplifier disposed in said first optical path between said phase modulator and said second PM coupler.

10. The apparatus of claim 2 further comprises:
a second phase modulator disposed in said second path.

11. In a fiber optic communication system having at least one fiber optic modulator, a method of enhancing the performance of the communication system comprising: fiber optic links comprising the steps of:
providing an optical source;
splitting signals from said optical source into first and second paths, said first and second paths forming a Mach-Zender Modulator (MZM) cavity;
phase modulating the signals in said first optical path;
controlling optical path length of said first and second paths;
combining the signals in said first and second paths; and
detecting the combined signals.

12. The method of claim 11 further comprising:
sampling the combined signals;
detecting the sampled signals; and

controlling the relative phases of said first and second paths.

13. The method of claim 12 wherein said phase modulator is made of lithium niobate (LiNbO3).

14. The system of claim 12 wherein a $LiNbO_3$ modulator modulates the signals in said first optical path.

15. The method of claim 12 further comprising:

inputting an analog signal to control the modulation of signals in said first path.

16. The method of claim 12 further comprising:

imprinting an analog RF signal onto said first path; and

controlling the length of said second optical path.

17. The method of claim 12 further comprising:

disposing a second phase modulator in said second path to allow for dual drive modulation.

18. The method of claim 11 wherein the output of said second PM coupler is detected using a plurality of photodetectors.

19. The method of claim 20 wherein the outputs of said photodetectors are subtracted to implement a balanced detection scheme.

20. A fiber optic link system for transmitting signals from a source to a destination having a fiber optic modulator, the fiber optic modulator comprising:

an optical source;

a first polarization maintaining (PM) coupler for splitting a signal received from said source into two optical paths, said two paths forming a Mach Zender Modulator (MZM);

a phase modulator disposed in a first optical path;

a piezo-electric transducer (PZT) disposed in a second optical path;

a second PM coupler for recombining said first and second paths; and

a detector for detecting the output of said second coupler.

21. The system of claim 20 further comprises:

a fiber tap for sampling a portion of the output of said second coupler;

a d.c. photodetector for detecting the output of said fiber tap; and

a phase locked loop (PLL) for receiving a signal from said d.c. photodetector and providing a feedback signal to said PZT to control the relative phases of said first and second paths.